Mention the full qs statement for proper evaluation. Without that marks and grading is not possible

Name — Inshirah Hussain
Assignment — General Science
Topic — Atmospheric Pollution (Causes, Effects)
Submitted To — Sir Majid Raza

"Atmospheric Pollution"

A. Definition of Atmosphere:

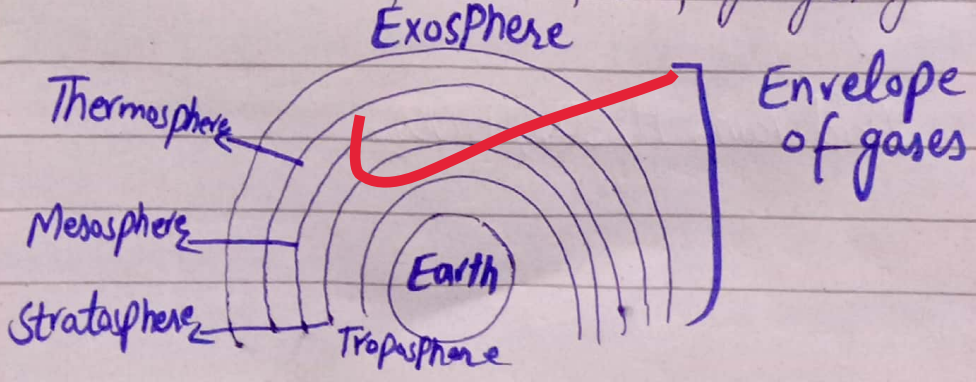
It is a mixture of gases which surrounds the planet earth, called atmosphere.

B. Layers of Atmosphere:

1) Troposphere
2) Stratosphere
3) Mesosphere
4) Thermosphere
5) Exosphere

C. Composition of Atmosphere:

The overall composition of gases are 78% Nitrogen, 21% oxygen and trace gases such as carbon dioxide, methane, neon, hydrogen gases.



i) Atmospheric Pollution:

- **According to World Health Organization**

It is about the situations in which the atmosphere contains pollutants in such concentration that remain harmful to the human health, plants, animals, micro organisms, aquatic life & to the environment.

ii) Types of Pollutants:

1. Primary Air Pollutants:

Pollutants which arises directly from their sources (ACs, Car, Generator, Machines) and directly pollutes the atmosphere.

For example:

$CO_2, SO_2, SO, NO_2, CO, CFCs.$

2. Secondary Air Pollutants:

Pollutants which arises from the primary air pollutants as a result of chemical reactions.

For example:

Acid rain, H_2SO_4, HNO_3.

• Causes/Factors of Atmospheric Pollution:

1) Combustion / Burning of fossil fuels:

Fossil fuels are the nonrenewable energy resources. For example: Oil, Coal, Diesel, and Natural gases. Fuel burning in various types of vehicles. Motor vehicle, railway and aircraft is the major source of pollution and its contribution is 75%. Incomplete combustion and dissociation of CO_2 at high temperature also give carbon monoxide. Iron, steel, petroleum and cement industries and brick kilns also emit carbon monoxide during burning process. The burning of fuel in internal combustion engine also produce NO_2. Nitrogen Oxides produced by the burning of coal, oil, natural gas and gasoline.

As per IPCC states the percentage of global emission by each sector which are;

1) **Energy Sector:** 35% of global emission
2) **Agriculture Sector:** 25% (fertilizer industry, machinery equipments, tube well, canal system etc).

Industrial sector: 21%
Transport sector: 15%

2) Population Explosion:-

US Census Bureau states the abrupt increase of global (pally's) population.

- 1960 – 3 billion population
- 2022 – 8 billion population
- Today more than 8 billion population.

Population explosions is one of the major cause of atmospheric pollution. As number of population increases, human activities also increase. These human activities result in increased production, urbanization, deforestation, transport, industrialization, more solid waste which ultimately add pollutants into the air.

Leave a line space between headings for neatness

3) Massive Deforestation:-

Deforestation is the permanent removal of trees from a forest. Making fuel, furniture, paper making are the reasons of cutting down the trees so fast.

Global Forest Watch:-

More than 10 million heaters have been deforestated in the world due to the humans over the past 4 years only.

Keep the description of a single argument/reason brief

Forests and plantations are also known as **carbon sinks (absorb CO_2)**. Deforestation results in the decline of carbon sinks in opposite there are increased sources of emissions of CO_2 and CO resulting an imbalance in the carbon levels of atmosphere. Currently **NOAA (National Oceanic and Atmospheric Administration)** quotes the release of CO_2 is 424ppm parts per million which was 420ppm last year.

4) **Rapid Urbanization:-**

Urbanization is a process in which increasing number of people within the cities. Whenever the urbanization happens, the city size increase, there is expansion, city also witnesses infrastructural development.

United Nations Report:

54% was urban population in 2014. Currently, it is 60% urban population. The urban process boosts the construction industry resulting in air pollution.

5) **Generation of Solid Waste:**

Solid waste generation process also pollutes the air. Different types of waste produces different types of pollutants into

the air.

For example:

Organic wastes produces gases (CH_4, CO_2, NO_2) which act as pollutants. More over solid waste is produced in different industries, domestic level, municipal, mining and institutional level at a great extend which turns to be unmanageble and disastrous for environment.

UNEP States:

- 350 million tons of Plastic globally per year.
- 15 million tons of Plastic in Pakistan as a waste production per years.

6) **Rapid Industrialization:-**

There are various industries which emit gases that increase the pollutants in the air.

- **Thermal Power Industry** emits CO_2 / CO / SO_x / NO_x.
- **Fertilizer Industry** emits CO_2 / CO / CH_4
- **Steel Mills** emits VOCs (Volatile Organic Compounds), SO_2
- **Textile Industry** produces CO_2 / CO / SO_2
- **Cement / Paper / Pharma** emits CO_2 / NO_x / SO_x

7) **Weapons and Warfare:**
Testing of weapons of mass destruction also add pollutants. Warfare usage also add Carbon dioxide, heat and toxins in the environment which cause atmospheric pollution.

8) **Electric Appliances:**
Electric Appliances such as ACs, Refrigenerators etc are massively used at **different levels** such as domestic, industrial and institutional. Electric appliances produce Chloro fluorocarbons (CFCs) which are polluted the atmosphere.

9) **Eruption of Wildfires:**
Global warming is the major cause of eruption of wildfires. Eruption of wildfires produces massive amount of CO, CO_2 heat and Ash which cause atmospheric pollution.

For example:
Canadian wild fires (2023)
Brazilian wild fires (2022)
Turkish wild fires (2021)

10) **Volcanic Eruption:**
Volcanic Eruption is the only natural factor that cause pollutants in the air.

Volcanic eruption produces heat, HCl, Ash, SO_2 which cause atmospheric pollution.

• Effects Of Atmospheric Pollution:

i) Effects on Plants:-

Atmospheric pollution cause multiple diseases in plants.

i) Abscission:

Sulphur oxides (SO_x) and Nitric oxides (NO_x) slow down the process of the photosynthesis in the leaves which results in weakening, wilting and yellowing of plants.

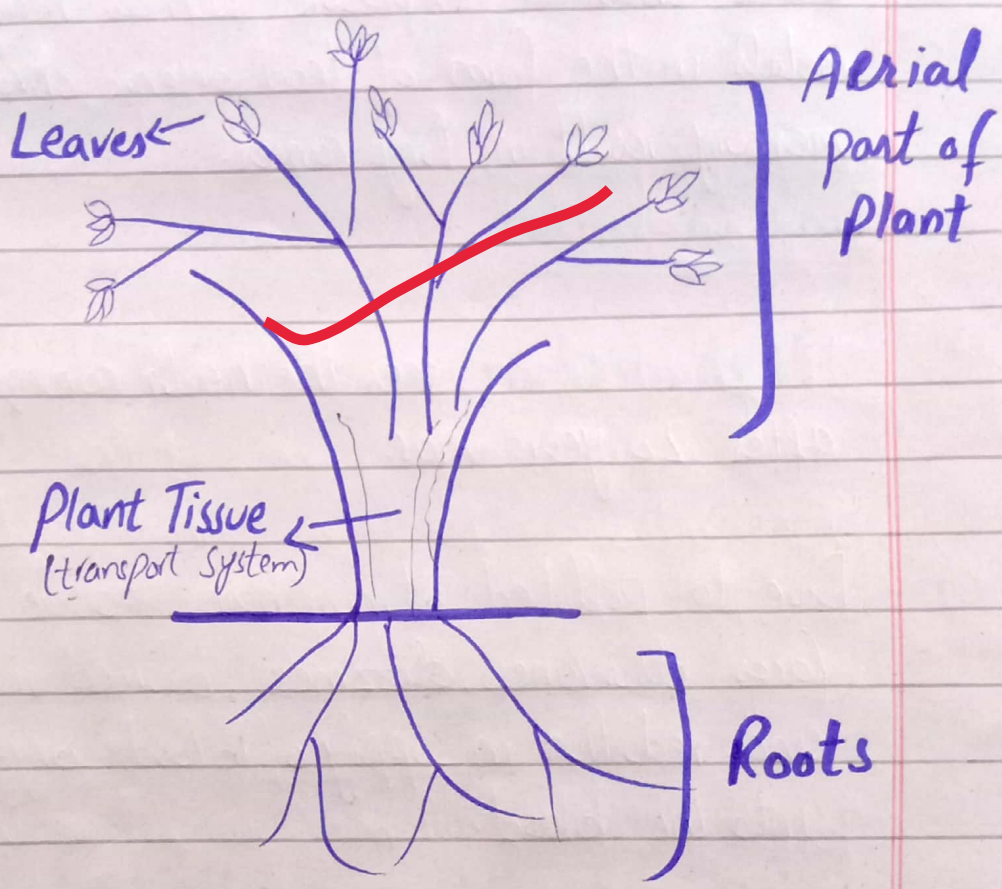
ii) Chlorosis:

Aerial pollutants get mixed in soil as a result necessary minerals don't get transmitted to the leaves. This results in the weakening of chlorophyll (the green pigment) in the leaves.

iii) Discolorization of Flowers:

Tropospheric ozone gas causes curling of petals and effect chromoplast (which gives color except green to the flowers). When pigment and color is not developed in plants, it effects the process of pollination

and breed.
Due to these multiple diseases of plants, plants gradually decay and (death) died.



2) Effects on human health:

Atmospheric pollution cause multiple health problems in humans.

a) Asthma:

Asthma is the respiratory tract disease in which causes inflammation in the airways, resulting in breathing problem.
Pollutants which are present in the environment due to atmospheric pollution

cause inflammation in the air ways of the human respiratory tract.

b) **Lung Cancer:**
Dired chemical exposure such as heavy metals in the form of lead, arsenic, chromium, mercury result in lungs cancer.

For example:-

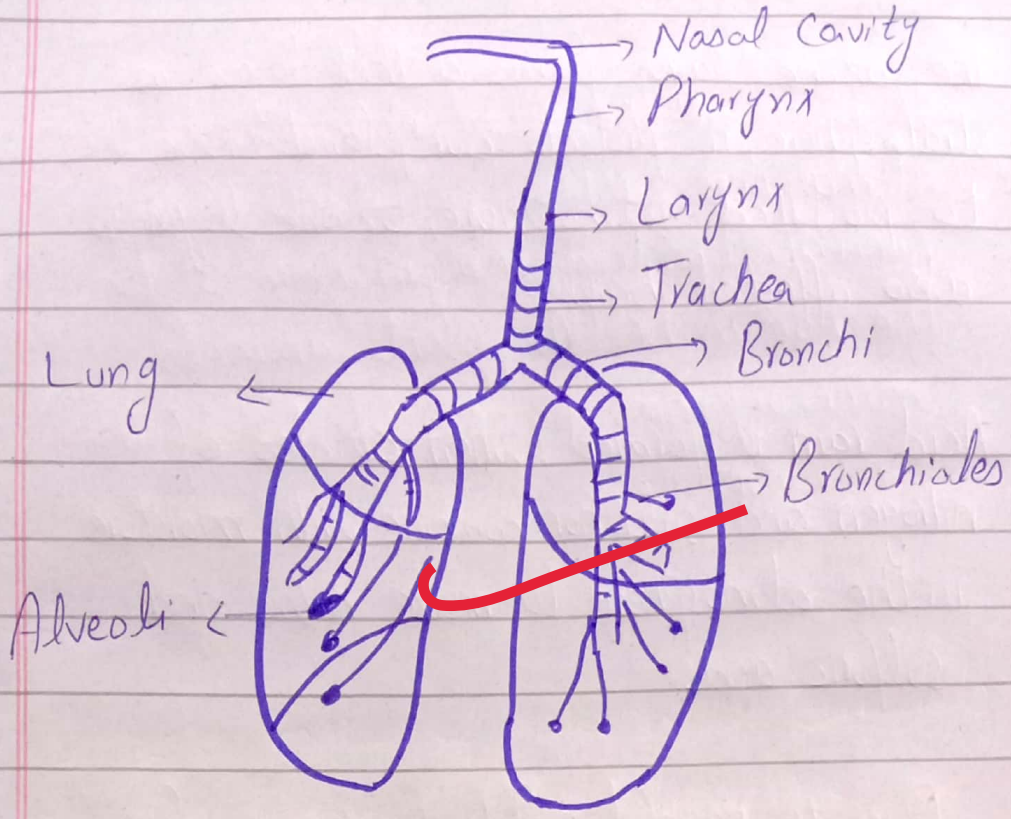
Afghanistan sees the heath consequences after 20 years war.

c) Due to polluted atmosphere, people faces drowsiness, dizziness, blurred vision and reduction in supply of (blood)x oxygen into the blood.

According to World Health Organization (WHO):

i) Due to air pollution, 6-7 million annual deaths occur globally.

ii) In Pakistan, due to air pollution, average life expectency reduced up to 7 years.



3) Effects On Aquatic Life and Microorganisms:

When the aerial pollutants transfer to water bodies or soil under the action of rain fall cause degradation of habitats and killing of micro-organisms.

4) Effects On Environment:

i) Global Warming:

Increased amount of carbon gases and tiny particles cause global warming. Global warming is the slow increase in the average temperature of the earth's atmosphere.

ii) **Ozone Layer Depletion:**

The ozone layer forms a thick layer in stratosphere, it protects our planet. Due to polluted atmosphere, ozone layer is also affected badly.

iii) **Acid Rain:**

Acid rain is formed when oxides of nitrogen and sulphur combine with moisture in the atmosphere to make nitric and sulfuric acids.

iv) **Smog Formation:**

Due to harmful pollutants, smog formation occurs. The location of smog formation is also of great concern, especially for human health, as a good portion of its is produced within cities where large portions of the population live.

Too lengthy for a single qs. This will badly affect your time management